N27 Kinsale Road Phase 2

Appropriate Assessment Screening

31 May 2022

Version – Final

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1. INTRODUCTION

1.1. Background

Mayfly Ecology was commissioned by RPS to produce this report regarding the proposed upgrade of pedestrian and cyclist facilities along the N27 Kinsale Road and associated site works in Cork (hereafter referred to as 'the proposed scheme'). This report contains the information required for the competent authority to undertake Screening for Appropriate Assessment.

This report is an examination of whether, in view of best scientific knowledge and applying the precautionary principle, the proposed development, either individually or in combination with other plans or projects, is likely to have a significant effect upon the Natura 2000 network (referred to as European sites in this report).

1.2. Statement of Competence

This report to inform AA Screening has been undertaken by Letizia Cocchiglia. She holds a BSc in Environmental Biology and a PhD in freshwater ecology. She has worked previously in consultancy as a Principal Ecologist for 6 years before setting up as an independent ecological consultant in 2021. Under previous and current role Letizia has experience in the Appropriate Assessment process for a range of projects including housing, commercial development, greenways, solar, water and road infrastructure. She has also attended oral hearing as an expert witness and has significant experience in both freshwater and terrestrial survey work.

1.3. Regulatory Context

Natura 2000 is a network of protected areas covering Europe's most valuable and threatened species and habitats. These sites are more commonly referred to as European sites in Ireland. The Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora, or "The Habitats Directive" for short, provides the legal protection for habitats and species of European importance with the aim to ensure the long-term survival of important European species and habitats.

The Habitats Directive establishes this European network of protected sites which includes **Special Areas of Conservation** (SACs) for important habitats, plants and non-bird species. It also encompasses **Special Protection Areas** (SPAs) which were first designated under the Birds Directive (Council Directive 79/409/EEC of the Conservation of Wild Birds codified as Directive 2009/147/EC. The Birds Directive protects all wild birds and their nests, eggs and habitats within the European Union. SPAs are classified to protect birds that are rare or vulnerable in Europe as well as all migratory birds that are regular visitors.

The Habitats Directive has been transposed into Irish Law by the European Communities Birds and Natural Habitats Regulations (S.I. 477/2011). Within Ireland, European sites are referred to as either Special Areas of Conservation (SACs), Special Protection Areas (SPAs) or **Candidate sites** (e.g., cSAC) as the process of designation is still ongoing. These candidate sites are subject to equal protection and are considered within this report.

Article 6(3) of the Habitats Directive establishes the requirement for Appropriate Assessment (AA):

> "*Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subjected to appropriate assessment of its implications for the site in view of the*

site's conservation objectives. In light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public."

1.4. Appropriate Assessment Process

The Appropriate Assessment process requires a stage-by-stage approach. Stage 1 and Stage 2 deal with the requirement under Article 6(3). Stage 3 may be part of Article 6(3) or may be a necessary precursor to Stage 4. Stage 4 is the main derogation step of Article 6(4).

Stage 1: Screening for Appropriate Assessment

This process identifies whether a plan or project is directly connected to or necessary for the management of a European site(s), and whether the plan or project is likely to have significant impacts upon a European site(s) either alone or in combination with other projects or plans.

If the effects are deemed to be significant, potentially significant, or uncertain, or if the screening process becomes overly complicated, then the process must proceed to Stage 2.

Stage 2: Appropriate Assessment

This stage considers whether a plan or project alone or in combination with other plans or projects, will have adverse effects on the integrity of European site(s). Where there are adverse impacts identified, mitigation measures as appropriate are specified and an assessment of the potential impacts following mitigation is undertaken.

The output of this stage is a Natura Impact Statement (NIS). The NIS is a report comprising the scientific examination of a plan or project and the relevant European sites(s). It means to identify and characterise any possible implications of the plan or project individually or in combination with other plans or projects in view of the conservation objectives and any further information including but not limited to, any plans, maps or drawings, scientific information or data required to enable the carrying out of an Appropriate Assessment (AA). The NIS document must include sufficient information for the competent authority to carry out the AA. If the assessment is negative, i.e., adverse effects on the integrity of a site cannot be excluded, then the process must consider alternatives, Stage 3 or proceed to Stage 4.

Stage 3: Assessment of Alternatives

This process examines alternative ways of achieving the objectives of the plan or project that avoid adverse impacts on the integrity of the European site. This assessment may be carried out concurrently with Stage 2 in order to find the most appropriate solution. If no alternatives exist or if all alternatives would result in negative impacts to the integrity of the European site(s) then the process either moves to Stage 4 or the project is abandoned.

Stage 4: Assessment where Adverse Impacts Remain

This stage involves the derogation process of Article 6(4) which examines whether there are imperative reasons of overriding public interest (IROPI) for allowing a plan or project that will have adverse effects on the integrity of a European site(s) to proceed in cases where it has been established that no less damaging alternative solution exists. Compensatory measures must be proposed and assessed.

2. METHODOLOGY

2.1. Assessment Methodology

This report to inform Screening for Appropriate Assessment follows the process summarised in **Figure 2-1** below. The steps followed is elaborated further below in Sections **2.3**, **2.4** and **2.5** below

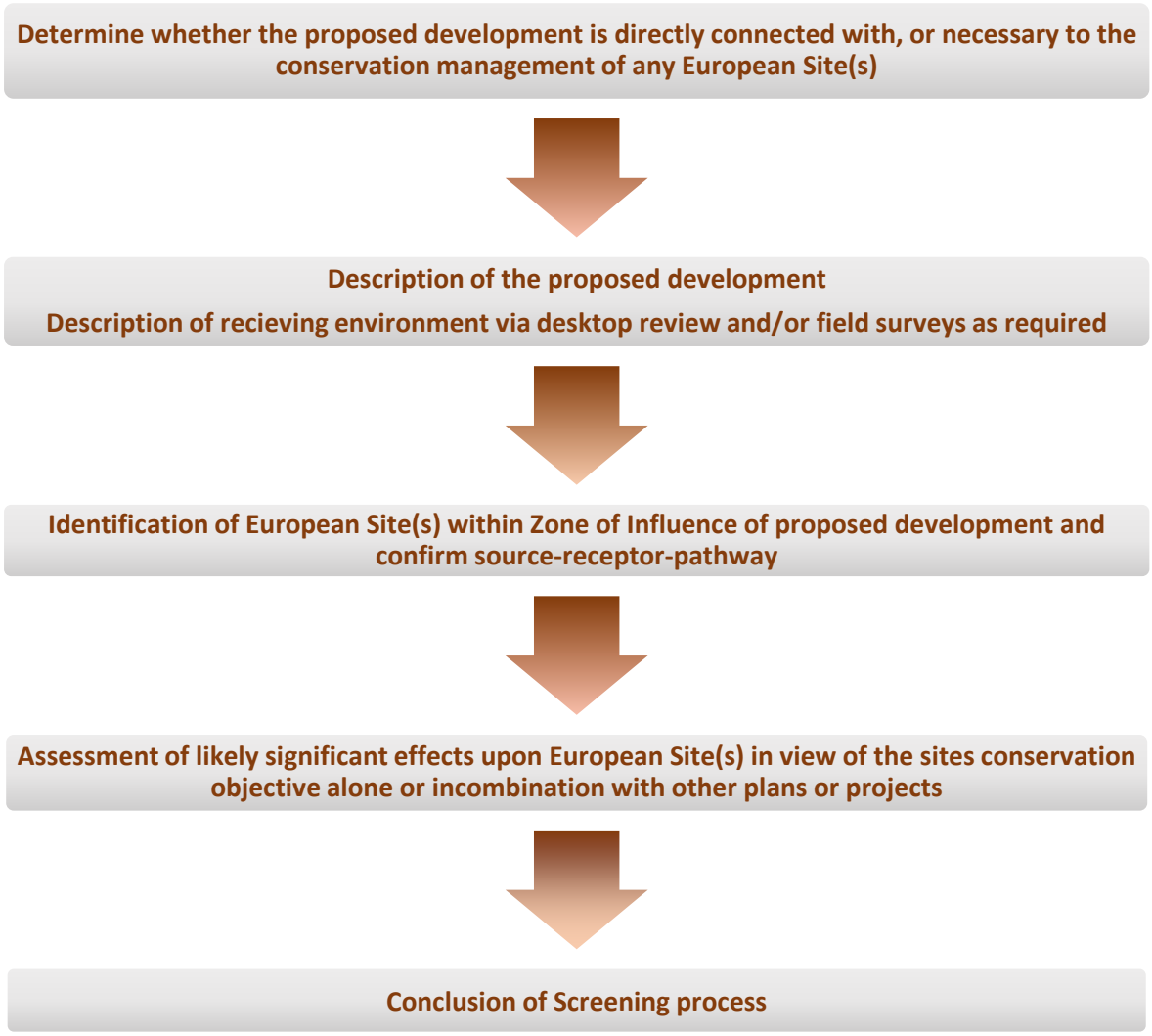

Figure 2-1 Chart outlining process of this report to inform AA Screening

2.2. Appropriate Assessment Guidance Documents

This report has been prepared with regard to the following Appropriate Assessment guidance documents;

- Appropriate Assessment Screening for Development Management. OPR Practice Note PN01. Office of the Planning Regulator, Dublin. (OPR, 2021).
- Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities. (DEHLG, 2009 rev. 2010).
- Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities. Circular NPW 1/10 & PSSP 2/10 (DEHLG, 2010).

- Assessment of Plans and Projects Significantly Affecting Natura 2000 sites: Methodological Guidance on the Provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC (EC, 2001).
- Communication from the Commission on the precautionary principle (EC, 2000).
- Managing Natura 2000 Sites: The Provisions of Article 6 of the Habitat's Directive 92/43/EEC (EC, 2018).

2.3. Desktop Review

A desktop review was completed to gather baseline ecological information for the study area and assess the potential for any Qualifying Interests/Special Conservation Interests (QIs /SCIs) of European sites to occur. The following sources were consulted to conduct the desktop review.

- Environmental Protection Agency (EPA) online mapping tools (https://gis.epa.ie/EPAMaps) and (https://www.catchments.ie/maps/) for water body information and mapping;
- EPA data resources for latest information regarding soils, geology, air quality, land use, water quality and licenced facilities (https://gis.epa.ie/GetData/Download);
- Information on ranges of mobile SCIs bird populations from Bird Atlas 2007–11 (Balmer *et al*., 2013), excluding birds of prey whose ranges were determined with reference to Hardey *et al*. (2013);
- Bird Watch Ireland for specific bird species information including habitat requirements, food preferences etc. (https://birdwatchireland.ie/);
- Inland Fisheries Ireland WFD fish monitoring reports and online mapping tool (http://wfdfish.ie/);
- National Parks and Wildlife (NPWS) website for Conservation Objectives, Site Synopsis and any other relevant reporting for European sites (https://www.npws.ie/protected-sites);
- NPWS online mapping and data resources for latest European site boundaries and relevant species/habitat mapping (https://www.npws.ie/maps-and-data);
- NPWS published report regarding conservation status of habitats and species in Ireland protected under the Habitats Directive (NPWS 2019a, 2019b and 2019c);
- National Biodiversity Data Centre (NBDC) online mapping tool for distribution records for QI and SCI species of European sites, invasive species and any other protected species (https://maps.biodiversityireland.ie/Map)[1];
- Geohive online Environmental Sensitivity Mapping tool (https://airomaps.geohive.ie/ESM/);
- National and regional surveys of semi-natural habitats, including grasslands (O'Neill *et al*., 2013), saltmarsh (McCorry and Ryle, 2009; Brophy *et al.,* 2019), and ancient woodlands (Perrin *et al*., 2008; Perrin & Daly, 2010);
- Geological Survey Ireland (GSI) groundwater body reports (https://www.gsi.ie/en-ie/Pages/default.aspx); and
- Any local surveys of flora, fauna and habitat available using the Heritage Councils mapping website (https://heritagemaps.ie/WebApps/HeritageMaps/index.html).

[1] Information from the National Biodiversity Data Centre downloaded from Biodiversity Maps on 20th May 2022.

2.4. Ecological Field Survey

This report was informed by an ecological survey conducted on the 17th May 2022 by Letizia Cocchiglia. The survey focused on the potential for Annex habitats or species to occur. The presence or signs of other species were noted such as those protected under the Wildlife Act 1976 (as amended), Flora Protection Order 1980 (as amended), any other species or habitats that are rare or of conservation concern including birds that are amber and red listed[2]. These are discussed elsewhere in project documentation. The following describes the surveys undertaken and methodology.

No survey limitations were encountered.

2.4.1. Habitat Survey

The aim of the survey was to note the existing habitats present and assess for the presence of Annex I habitat. The survey was undertaken following the Irish guidance document *Best Practice Guidance for Habitat Survey and Mapping* (Smith *et al.,* 2011)

Habitat types were identified according to the standard habitat classification scheme *Guide to Habitats* (Fossitt, 2000). The DAFOR[3] scale was used to record the relative abundance of species noted. Annex I habitat types were classified following *Interpretation Manual of European Union Habitats EU28* (EC & DG Environment 2013) along with information within national habitat survey reports and NPWS reports as available. The naming convention for any Annex I habitats if identified follows those within *The Status of EU Protected Habitats and Species in Ireland* (NPWS, 2019a).

2.4.2. Invasive Species Survey

This survey focused on the presence of Third Schedule [4] invasive plant species within the proposed scheme boundary and immediate environs. The survey was conducted within the optimum plant growing season (April – Sept). Any invasive pants identified were noted and mapped. The extent and condition of infestation was recorded.

2.4.3. Terrestrial Mammal Survey

The presence of any terrestrial mammals was determined by noting field signs of activity such as; tracks, trails, scat, hair and feeding signs. Any signs of mammal breeding or resting spots such as badger setts, fox dens or otter holts/couches were noted.

The lesser horseshoe bat (*Rhinolophus hipposideros*) is Irelands only bat species listed on Annex II of the Habitats Directive and is a QI of some European sites. It is the only bat species to be considered as part of the Appropriate Assessment process. However, all bat species including the lesser horseshoe are listed under Annex IV of the Habitats Directive and are protected under the Wildlife Act 1976 (as amended) and it is an offence to intentionally disturb, injure or kill a bat or disturb its resting place.

Given this, the survey included an assessment for the presence of potential bats roosts. An inspection of the woodland/trees within the proposed scheme boundary was conducted focusing on cavities

[2] Amber and Red listed birds as per Birds of Conservation Concern 2020 -2026 (Gilbert et al 2021)

[3] D – Dominant, A – Abundant, F – Frequent, O – Occasional, R -Rare.

[4] Invasive species scheduled to the EC (Birds and Natural Habitats) Regulations 2011 as amended ('the Regulations'). Under the Regulations, it is an offence to plant, disperse, allow or cause to disperse, spread or otherwise cause to grow in any place any species scheduled to the Regulations without a licence.

within trees, cracks in limbs, loose bark, old buildings/sheds. It followed methodology as per the Bat Conservation Trust guidance (Collins, 2016). This was a visual assessment only and was conducted on the ground with the aid of binoculars. Commuting corridors are those formed by linear features which bats may utilise to move between potential foraging and roosting areas. These corridors can be formed by hedgerows, treelines, water bodies, treelines, woodland edges or small laneways. The presence of bat commuting corridors were also noted during the survey.

The results of the bat habitat assessment are summarised in this report and further more detailed discussion is contained within other project documentation (See EIA Screening).

2.4.4. Birds

A dedicated breeding bird or wintering bird survey was not conducted. During the ecological survey on the 17th May 2022 any birds within the proposed scheme boundary or immediate environs were noted. Birds were identified either visually or by song/call. Habitat suitability for birds was also assessed.

2.4.5. General River Habitat Characteristics

The general river habitat characteristics were recorded broadly following those listed within the Environment Agency's '*River Habitat Survey in Britain and Ireland Field Survey Guidance Manual*' (EA, 2003) and *Northern Ireland Environment Agency's 'River Hydromorphology Assessment Technique (RHAT) Training Manual* (NIEA, 2014). Characteristics recorded include the following;

- Substrate type, degree of overlying sediment and note of sediment generated when substrate disturbed.
- Flow conditions and velocity.
- Riparian zone structure which includes a list of the dominant bankside vegetation and degree of shading along the river.
- Macrophytes and macroalgae present within the river.
- General hydromorphological characteristics including; river depth, width, bank height, signs of erosion or modification and barriers to connectivity.

2.5. Defining the Zone of Influence

The proximity of the proposed scheme and its potential influence upon European sites is of importance. Defining a **Zone of Influence** (ZoI) identifies the relevant European sites which need to be considered as part of the assessment.

The identification of European sites within a 15km buffer of a proposed scheme is common practice in AA Screening reporting. For many projects however, it is not appropriate to solely apply this standardised buffer. The size of the ZoI is dependent on the scale and nature of a project. Some projects may have a considerably smaller ZoI while other larger and more complex projects may have a ZoI which is much greater than 15km. The general ecology of the protected species and habitats within the European site in question must also be considered when defining a ZoI. Small species like whorl snails (*Vertigo* spp) may have a range as small as several meters while other species like migratory wetland birds may have a much wider ranges spanning hundreds of kilometres. Aquatic habitats may be located many kilometres downstream of a proposed scheme but potential pollutants as a result of the proposed scheme may be able to reach this habitat via surface or groundwater flows.

In view of this, the **Source- Pathway-Receptor** model has been used during this assessment and is applied to all stages of the proposed scheme as applicable (e.g., construction, operation and decommissioning).

- Source – is an element of the proposed project that has the potential to impact on a European site.
- Pathway - is the identification of a pathway that could link a European site and their QIs/SCIs to the proposed scheme. Pathways may be terrestrial, hydrological, hydrogeological or via air.
- Receptor - is the identification of QIs/SCIs and the conservation objectives set which underpins their ecological requirements to maintain or restore favourable conservation status.

2.6. Defining Likely Significant Effect

The key test in Screening for Appropriate Assessment is to establish whether any likelihood of significant effects on European sites can be ruled out. Once the relevant European site(s) have been identified, this test must then be applied. This is summarised as the test for **Likely Significant Effects** and the Office of the Planning regulator guidance (OPR 2021) expands on this meaning as;

Likely means a risk or possibility of effects occurring that cannot be ruled out based on objective information and

Significant Effects are those that would undermine the conservation objectives of the European sites, either alone or in-combination with other plans and projects. The significance of ecological impacts depends on

- the ecological characteristics of the species or habitat, including their structure, function, conservation status and sensitivity to change, and/or
- the character, magnitude, duration, consequences and probability of the impacts occurring.

This definition above is used in this assessment and the threshold for likely significant effects is treated in this assessment as being above a *de minimis* level[5].

3. INFROMATION TO SUPPORT AA SCREENING

3.1. Is the Proposed Scheme Connected or Necessary to the Management of European Site?

The proposed development is not directly connected with or necessary to the management of any European site(s).

3.2. Description of the Proposed Scheme

The proposed scheme is located along an approximate 3km section of the N27 south of Cork City between the Frankfield Junction (Lat 51.8729, Long -8.47148) and the Airport Roundabout (Lat

[5] *Sweetman v. An Bord Pleanála* (Court of Justice of the EU, case C-285/11) - A de minimis effect is a level of risk that is too small to be concerned with when considering ecological requirements of an Annex I habitat or a population of Annex II species present on a European site necessary to ensure their favourable conservation condition. If low level effects on habitats or individuals of species are judged to be in this order of magnitude and that judgment has been made in the absence of reasonable scientific doubt, then those effects are not considered to be likely significant effects

51.84798, Long -8.47628). It will be located mainly within the confines of the existing N27 road with some sections requiring extension into existing footpaths and grassy verges. At the Ballycurreen Junction some vegetation will need to be removed to facilitate the proposed scheme (hedging and trees).

A map indicating the location of the development and red line boundary is shown below in **Figure 3-1.** More detailed drawings of the proposed development layout are shown in **Appendix A**

The proposal is to upgrade the pedestrian and cyclist facilities along the Scheme length. Shared pedestrian and cyclist facilities will be provided on both sides of the road along the section from Frankfield Junction to the Ballycurreen Junction, this section is located in an urban environment. Works along this section will consist of realignment of existing road markings and widening of the existing footpaths along an approximate 400m section of the northbound carriageway. Widening of the existing footpaths will consist of extending the footpath into approximately 1m of the existing verge for approximately 200m of the section. The widened footpaths will utilise the existing drainage system, with a number of gullies requiring minor realignment.

The outfall location of the existing surface water drainage system was investigated by Cork City Council and it was concluded that the existing road drainage outfalls to the Frankfield Road Stream.

A realignment of the existing Ballycurreen Junction is proposed. The realignment of the Ballycurreen Junction will be contained within the existing road extents. The provision of a new shared footpath will require the installation of a new drainage system along an approximate 50m of the Ballycurreen Road. The drainage system will outfall into the existing surface water drainage system. An approximate 50m long, 3m wide section of new lands are to be obtained in front of a derelict house along the N27 northbound carriageway at the Ballycurreen Junction. The site clearance may involve the removal of a several trees and bushes along the section. There is a proposed new footpath to be installed on the northbound verge on Forge Hill Road, the new footpath will be provided within the existing road extents.

The proposed design will provide additional vegetation areas along Ballycurreen Road. A re-alignment of Ballycurreen Road will provide an area of vegetation located in the existing road pavement. It is proposed to provide pollinator friendly vegetation in this area. The proposed design will also provide safety barriers in the form of concrete flower pots in the vicinity of Bull McCabe's Pub. The flower pots will be planted with low height pollinator friendly flowers and vegetation. These measures have been proposed to attempt to offset any vegetation loss along the Scheme.

A segregated cycle lane is proposed in both carriageways along the section from Ballycurreen Junction to the Airport Roundabout, this is located in a rural environment. The existing road is to be realigned to provide the required lane widths, with no construction required outside the existing road extents. The existing drainage systems are to be maintained.

At the Airport Roundabout the existing footpaths are to be widened into the existing grass verges by approximately 1m. The widening of the footpaths will require the relocation of serval existing utilities including lamp post locations. No additional lighting will be required. The existing drainage will be maintained.

Materials used will include concrete for the shared pedestrian and cyclist path. Tarmac will be used where the cycle path will be on the road. The construction of the proposed scheme will take approximately 6 months.

Figure 3-1: Map showing location of the proposed scheme.

3.3. Existing Environment

The following information details the results of the desktop and ecological survey which are used to inform the assessment of likely significant effects upon European sites. Starting from the Kinsale Roundabout the surrounding landscape is urbanised with roads, business and warehouses surrounding the area. After the junction between Forgehill and Ballycurreen roads the landscape becomes more rural with agricultural grassland and private housing surrounding the N27. Cork Airport is located just off the Airport Roundabout.

3.3.1. Habitats

The proposed scheme is largely located within the footprint of the existing N27 road, cycleway and footpaths. The edges of the road are characterised by grassy verges, treelines, woodland and small sections of scrub.

The scheme starts within 25m of a small tributary of the Tramore River. This stream rises in Curragh Woods housing estate. It flows in a north westerly direction passing under the Kinsale Roundabout before joining in the Tramore River (also called the Douglas River) at the Barrys Tea factory. It is diverted underground for most of its course. It does surface briefly along the Frankfield Road before disappearing again. There will be no interference with this stream and it is diverted underground where it is proposed to start the scheme. The EPA has classified this as the Moneygurney_010 water body. However, there are a number of separate Moneygurney_10 water bodies within the area and to avoid confusion this stream is referred to as the Frankfield Road Stream in this report.

At the Ballycurreen junction a raised concrete platform exists by Bull McCabes pub with flower pots on top. There is only a very narrow grassy verge at the start of this junction with no footpath. Opposite the pub along the Ballycureen Road there are large leylandii and other conifers trees and as one travels up the road on one side there is a treeline dominated with hawthorns.

As the road continues to the Airport Roundabout main habitats along the road edge are again grassy verges, with treelines, woodland edges and scrub. Along the southbound carriageway steep bedrock outcrops are present. As one approaches the Airport Roundabout the carriageway is divided by beech hedging and maple trees. Exits along the roundabout and the roundabout itself consist mainly of amenity grass. Here there may be opportunities to increase biodiversity potential with native wildflower planting or reduced mowing regimes. In particular there is a large strip of disturbed ground which has colonised with winter heliotrope. This strip has potential for native tree planting and/or a wildflower meadow. Plans here would be dependent on sightlines for vehicles and airport restrictions.

A second tributary of the Tramore River rises just north of the Airport Roundabout it is diverted under the N27 then turns sharply and flows northwards parallel to the N27 until it reaches the Tramore River at Togher. This is again part of the Moneygurney_010 water body and the EPA have named this the Lehenagh Beg. For the purpose of this report this stream is referred to as the Kinsale Road Stream to help discern between the location of the two streams throughout the report. The Kinsale Road Stream flows within 15m of the proposed scheme at its closest point and it is diverted under an existing culvert where the scheme passes over it. There will be no interference with this stream.

The ecological survey did not identify any habitat which corresponds with Annex I habitat. The habitat types identified within the proposed development boundary and immediate surrounding area are summarised in **Table 3-1** below and photographs of main habitats are given in **Appendix B.**

Table 3-1: Habitat types identified within and adjacent to the proposed development boundary

Habitat name	Fossitt Code	Description
Dry meadows and grassy verges	GS2	Grassy verges occur on both sides of the road along most of the proposed upgrade scheme and junctions along the airport roundabout. The grass had been mown recently but species observed along uncut margins included herb-robert (*Geranium robertianum*), ribwort plantain (*Plantago lanceolata*), common hogweed (*Heracleum sphondylium*), nettle (*Urtica dioica*) and creeping buttercup (*Ranunculus repens*). Winter heliotrope has colonised large sections along the edge roadside verge for most of the scheme.
Treelines	WL2	A near continuous treeline is present along both carriage ways. Its only broken as one approaches the Kinsale and Airport roundabouts and the Forgehill/Ballycurreen junction. The treeline consists mainly of a mix of broadleaves; willow (*Salix sp.*), beech (*Fagus sylvatica*), ash (*Fraxinus excelsior*), hawthorn (*Crataegus monogyna*), Norway and field maple (*Acer platanoides* & *Acer capestre*), sycamore (*Acer pseudoplatanus*), alder (*Alnus glutinosa*), hornbeam (*Carpinus betulus*), birch (*Betul*a sp.) and lime (*Tilia* sp.) with the occasional leylandii and Scots pine (*Pinus sylvestris*). Understorey consists of ferns, nettle, bramble (*Rubus fructicosus*), ivy (*Hedera helix*), fox gloves (*Digitalis purpurea*), bluebell (*Hyacinthoides non-scripta*), daffodil (*Narcissus* sp.) winter heliptrope (*Petasites pyrenaicus*) occasional *f*uschia (*Fuchsia magellanica)*, montbretia (*Crocosmia x crocosmiiflora*), Butterfly-bush (*Buddleja davidii*), and snowberry (*Symphoricarpos albus*).

Habitat name	Fossitt Code	Description
		One section of treeline consists solely of ash trees planted on mowed grassy verge on the northbound carriageway 220m from the Airport Roundabout. Outside the Sisk building there is treeline formed solely of Norway maple trees planted on mowed grassy verge.
Scattered trees and parkland	WD5	Heading south birch trees are planted along the boundary wall of the Toyota dealers. At the Ballycurreen junction aspen (*Populus tremula*) and Italian alder (*Alnus cordata*) have been planted at the sheltered housing entrance. Ash, rowan (*Sorbus aucuparia*) and birch trees have been planted along a wide section of grassy verge 1.1km north of the Airport Roundabout.
Mixed Broadleaved woodland	WD1	Mature broadleaved trees form the boundary between the carriageways and agricultural lands along most of the scheme. In sections the treeline is actually the outer edge of small narrow woodlands. The first is located just after the Toyota dealers in a piece of land with planning application for development. A mix of trees is present with beech, field maple, sycamore, alder and hawthorn along the boundary grading into willows. Climbing vegetation and understorey consists of clematis, bittersweet (*Solanum dulcamara*), guelder rose (*Viburnum opulus*), bramble, nettle, ivy, herb-robert, dog wood (*Cornus* spp.) and creeping buttercup. The next bit of woodland along the southbound carriageway is located 720m north of the airport roundabout here trees are located in a sunken area with a with a tall exposed bedrock in the middle. Trees consist of hawthorn, rowan, oak, sycamore, willow and beech with an understory of bramble, nettle, cleavers (*Galium aparine*), ferns, creeping buttercup, herb-robert. Of particular note is the woodland along the northbound carriageway which follows the Kinsale Road Stream parallel to the scheme. It forms a continuous linear corridor for 2.2km until it meets the main channel of the Tramore River at Togher. It is part of a series of linear woodlands in the surrounding area which follow small tributary streams toward Cork city providing important wildlife connectivity in and out of the city. Another section of woodland along the northbound carriage way is located between junction and Sisk entrance. This consists of willow, ash, hawthorn, beech and sycamores.
Scrub	WS1	Small sections of scrub are present along the scheme. Narrow strip of gorse (*Ulex europaeus*) scrub along the southbound carriageway 900m from the Airport Roundabout. This is interspersed with low willow, ash, hawthorn and sycamore. Another narrow strip of scrub is located 305m from the Airport Roundabout consisting mainly of gorse and hawthorn. A dense and tall bramble scrub area is present on the northbound carriageway just at the entrance to Sisk.
Hedgerows	WL1	Hedging within private front gardens along the scheme which consist mainly of ornamental species (box, privet). Cherry laurel (*Prunus laurocerasus*) hedgerow is located at the Airport Roundabout junctions.

Habitat name	Fossitt Code	Description
		Beech hedgerow is located along the section dividing the carriage way as one approaches the Airport Roundabout. This is dotted with planted maple trees.
Recolonising bare ground	ED3	Gravel pathway exists along the southbound carriageway as one approaches the Airport Roundabout. This section is recolonising with gorse, rushes (*Juncus* spp.), grasses and bramble. Also at the roundabout by the exit to the airport there is an area where soil has been disturbed and is recolonising with winter heliotrope.
River	FW1	A tributary of the Tramore River (Frankfield Road Stream) is diverted under the Kinsale roundabout. Another tributary of the Tramore River (Kinsale Road Stream) flows parallel to the N27.
Stonewalls	BL1	Stonewall forming property boundary along the Ballycurreen Road almost covered in ornamental hedging. Another stonewall which has been almost fully covered with vegetation present along the Rathmacullig Junction of the Airport Roundabout.
Buildings and other artificial surfaces	BL3	Majority of proposed scheme lies within the existing N27 road, footpath and cycleway. Housing and commercial buildings are present along either side of the road.
Exposed Rock	ER	Sections with exposed bedrock along the northbound carriageway.

3.3.2. Invasive Species

A review of NBDC online mapping returned records of four invasive plant species listed as Third Schedule within or adjacent (1km) to the proposed scheme. These are; Himalayan balsam (*Impatiens glandulifera*); Japanese knotweed (*Fallopia japonica*); three-cornered garlic (*Allium triquetrum*) and water fern (*Azolla filiculoides*). The Japanese knotweed is the only record occurring within the proposed scheme area.

Table 3-2: Third schedule plant records within 1km of the proposed scheme. Where multiple records of the same species exist, the information given is for the closest record to the proposed scheme.

Third Schedule Plants	No. of records within 1km	Irish Grid reference given	Record date	Distance from proposed scheme
Himalayan balsam (*Impatiens glandulifera*)	4	W682692	26/07/2020	688m within Tramore Valley Park
Japanese knotweed (*Fallopia japonica*)	31	W672665	28/09/2017	Within
Three-cornered garlic (*Allium triquetrum*)	6	W675687	06/03/2017	229m along Alderbrook estate
Water fern (*Azolla filiculoides*)	2	W6869	Historic record 1950	688m beside Tramore river in Tramore Valley Park.

During the site survey three plant species listed as Third Schedule were noted; Japanese knotweed, three-cornered garlic and rhododendron. The Japanese knotweed was present at four separate locations at the edge of the grassy verges and is within 7m of the proposed scheme. Young growth was noted with no dead canes from previous years observed. Knotweed growth was not dense but consisted of single to a few individual plants. "Do Not Cut" knotweed signs are present along the length of the proposed scheme. The Parks Department of Cork City Council have an invasive species management plan in place, no knotweed treatment has been applied to the identified areas to date.

Three-cornered garlic was observed at three locations also along the edges grassy verge with a dense carpet of garlic observed at one location. This plant was observed in areas that will not be disturbed by the proposed works. Rhododendron was only observed growing within the front of private gardens. A map showing the location of Third Schedule plants is shown below in **Figure 3-2.**

Other invasive plants were noted which are not listed on the Third Schedule but are considered to carry a high to low risk of impact (Kelly *et al.,* 2013), these are listed in **Table 3-3.**

Table 3-3: List of other non-third schedule invasive plants identified within the proposed scheme boundary.

Species	Risk of impact	Location
Cherry laurel (*Prunus laurocerasus*)	High	Laurel hedging was observed around two of Airport Roundabout exits.
Traveler's joy (*Clematis vialba*)	Medium	Found frequently scattered throughout the proposed scheme.
Butterfly bush (*Buddleia davidii*).	Medium	Found infrequently scattered throughout the proposed scheme.
Winter heliotrope (*Petasites fragrans*)	Low	Present on edge of the grassy verges along most of the proposed scheme.
Montbretia (*Crocosmia x crocosmiliflora*)	Not yet assessed	Scattered observations throughout the proposed scheme along the edges of grassy verges.
Snowberry (*Symphoricarpos albus*)	Not yet assessed	Scattered throughout the site located in the understory of treelines and woodland areas.

3.3.3. Terrestrial Mammals

A review of NBDC online mapping revealed records of protected terrestrial mammals within the proposed development scheme and adjacent (1km). There are records of otter (*Lutra lutra*) within 1km of the proposed scheme. These records are along the Tramore River within the Tramore Valley Park and just upstream of it. One record is just below the confluence of the Kinsale Road Stream and Tramore River. It is considered that otter would be able to access the Kinsale Road Stream however the stream may be limited as a feeding resource given how shallow it is. Otter is an Annex II species and the closest European site where it is a QI is the River Blackwater (Cork/Waterford) SAC (002170), 18.3km north of the proposed scheme.

Table 3-4: Annex II species records within 1km of the proposed scheme. Where multiple records of the same species exist, the information given is for the closest record to the proposed scheme.

Annex II Species	No of Records within 1km	Irish Grid Reference Given	Location
Otter (*lutra lutra*)	5	W673693	355m north west of Kinsale Roundabout along the Tramore River

No other records of Annex II terrestrial mammal species were found during the desktop search. Other species protected under the Wildlife Act (1976 as amended) include pine marten (*Martes martes*) 580m west of the Ballycurreen Mass Rock. There is also a roadkill record for hedgehog along the N27 618m south of Ballycurreen Mass Rock.

There is a roadkill record of Eurasian badger (*Meles meles*) along the N27 within the proposed scheme area 480m south of the Ballycurreen mass rock. There is also a record of badger sett within 1km of this road kill and the proposed scheme (exact coordinates are not given). Another sett has also been recorded within 1km of the proposed scheme in the area between the N27 and Southside industrial estate. A further roadkill record exists along the R600 approximately 880m south of the Airport Roundabout.

The site survey noted the presence of rabbit (*Oryctolagus cuniculus*) in the field immediately east of the Airport Roundabout (TN1 in **Figure 3-2** below). A well-worn mammal trail was present on the southbound carriageway 447m north of the Airport Roundabout (TN4 in **Figure 3-2** below). This runs up a steep bank through the scrub and into field behind. A fox print was observed on the trail and it is almost opposite the roadkill records for badger and hedgehog.

3.3.4. Bats

A review of NBDC online mapping also returned records of bats within 1km of the proposed development. Records of three bat species and one unidentified pipistrelle species were returned; Daubenton's bat (*Myotis daubentonii*), lesser noctule (*Nyctalus leisleri*), soprano pipistrelle (*Pipistrellus pygmaeus*) and pipistrelle (*Pipistrellus pipistrellus* sensu lato).

The five-point scale bat habitat suitability index available from NBDC online mapping was utilised to assess the importance of the study area for bat species. This index ranges from 0 to 100 with 0 being least favourable and 100 most favourable for bats. For all bat species an Index number of 28.22 was returned indicating Moderate potential. The soprano pipistrelle (*Pipstrellus pygmaeus*) returned the highest score at 43 while the score for the Annex II bat lesser horseshoe bat (*Rhinolophus hipposideros*) is 0.

The lesser horseshoe bat has been recorded around Cork city and environs. There is an NBDC record from Ovens 13km northwest of the proposed scheme. In addition, the EIS for the Lower Lee (Cork City) drainage scheme notes small numbers present in Ovens, Ballincollig, Blarney areas (Ryan Hanley, 2016). The closest European site protected for lesser horseshoe bat is Killarney National Park Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC (000365) 50km northwest of the proposed scheme.

The treelines and woodland habitat along the N27 do form important bat commuting corridors connecting into surrounding agricultural grasslands.

Two ash trees along the scheme were noted as having bat roosting potential (TN2 in **Figure 3-2** below). One of the trees is dead with pealing bark offering habitat for roosting. The other tree has dead limbs also with pealing bark.

Just at the Ballycurreen junction there is an abandoned house on the northbound carriageway. This house will not be removed as part of the works however the trees in front will need to be removed as the road is very constrained here. These trees are mainly lime and sycamore and do not appear of offer bat roosting potential. The lime trees have been coppiced creating thin and bushy regrowth. No hollows or features offing bat potential were observed in any of the trees here. There is a small holly tree within the grounds of the abandoned house. Its trunk is twisted with crevices and may offer bat roosting potential (TN5 in **Figure 3-2** below). The house itself is of modern construction with PVC windows and rendered walls. The roof appeared intact.

3.3.5. Birds

The nearest European sites protected for birds is Cork Harbour SPA (004030) which is 2.6km north east of the proposed scheme. The SPA is protected for 23 species of wetland and wading birds as well as wetland and waterbird habitats.

Habitats within the proposed development scheme are not considered supporting ex-situ habitats to any of the SCI birds. The treelines, scrub, woodland habitats and adjacent fields provide nesting / feeding / resting habitat for passerine (songbirds) birds.

The bird species noted during the ecological survey on the 17th May 2022 are listed in **Table 3-2** below. The birds observed are considered to be common within the wider landscape. No species are SCIs of any European site. A blue-tit nest was observed within a telephone pole beside the Airport Roundabout (TN3 in **Figure 3-2** below).

Table 3-5: List of bird species noted within and adjacent to proposed development site

Common name	Latin name	Identification
Wren	*Troglodytes troglodytes*	song
Robin	*Erithacus rubecula*	song
Chaffinch	*Fingilla coelebs*	song
Blackbird	*Turdus merula*	visual
Blue tit	*Cyanistes caeruleus*	visual/nesting @ 51.84885, -8.47630
Woodpigeon	*Columba palumbus*	visual
Goldcrest	*Regulus regulus*	song
Blackcap	*Sylvia atricapilla*	song
Willow warbler	*Phylloscopus trochilus*	song
Starling	*Sturnus vulgaris*	visual
Rook	*Corvus frugilegus*	visual

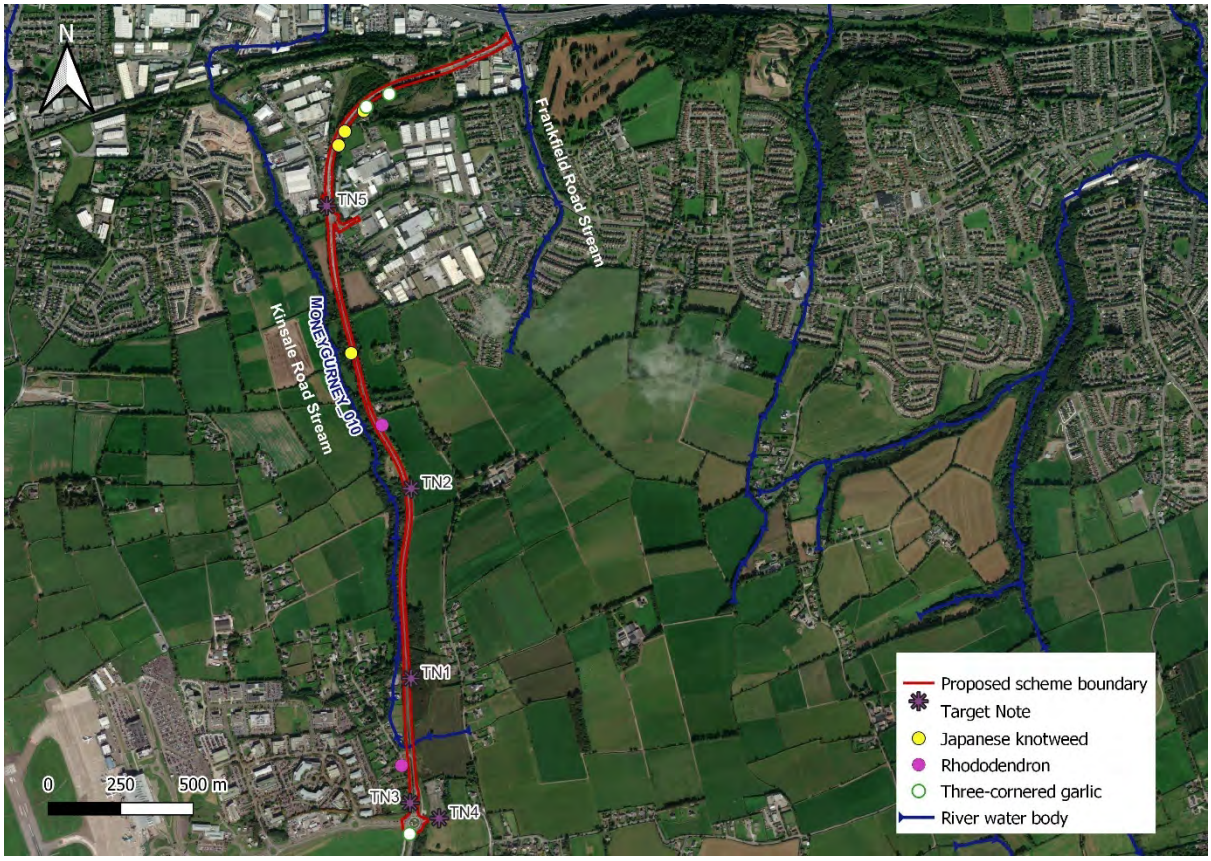

Figure 3-2: Map showing location of Third schedule invasive species and target notes (TN).

3.3.6. Surface Water

3.3.6.1. Quality

The proposed development scheme lies within the Lee, Cork Harbour and Youghal Bay catchment, Hydrometric Area 19. Two streams intersect the proposed scheme however no instream or bankside works are required.

The Frankfield Road Stream is diverted under the Kinsale roundabout. The stream is classified as being part of the Moneygurney_010 waterbody by the EPA. It rises in Curragh Wood housing estate with sections diverted underground. A section is visible along the Frankfield Road. Here it is cobble/gravel dominated with moderate flow. In stream vegetation consists of water starwort (*Callitriche sp)* and dense growth of algae (50% coverage) on the substrate consisting of *Vaucheria* sp. and *Cladophora* sp. Both algae are indicative of nutrient enrichment. The stream is 1m wide and 10-20cm deep, moderate velocity with a slight grey tinge.

The Kinsale Road Stream (Lehenagh Beg on EPA mapping) intersects the existing N27 approximately 227m north of the Airport Roundabout. It then turns sharply flowing northward toward the Tramore River following the N27. The stream is also classified as being part of the Moneygurney_010 waterbody by the EPA. It is located within a very steep V-shaped valley making access difficult. It's a narrow cobble dominated stream 0.5 to 1m in width. It regains a natural profile after it passes under the N27. The stream was very shallow on the day of survey at 5cm despite rainfall in the previous days and during the survey. The water was clear with no instream vegetation visible.

Both streams discharge to the Tramore River which then enters Lough Mahon. The tidal reaches of the Tramore River form part of the Cork Harbour SPA.

The is no EPA ecological monitoring point within the Moneygurney_010 water body. It has been assigned Moderate WFD Status 2013-2018 based on expert judgement and its risk of failing to achieve WFD objectives is Under Review. Lough Mahon has been assigned Moderate WFD Status (2013-2018) and classified as being At Risk of failing to achieve WFD objectives. **Figure 3-3** below displays the closest mapped surface water bodies to the proposed development. **Table 3-6** below summarise the ecological quality and WFD status for water bodies discussed above

Water Framework Directive (WFD) Priority Areas for Action are areas where action will be carried out in the River Basin Management Plan (RBMP). The Areas for Action were selected based on the priorities in the RBMB, the evidence from the WFD characterisation process, and the expertise, data and knowledge of public body staff with responsibilities for water and the different pressure types. The Local Authority Waters Programme (LAWPRO) conduct assessment work within the Area for Action. In total, 15 Areas for Action within the Lee, Cork Harbour, Youghal Bay catchment are recommended in the draft 3rd Cycle RBMP. The Moneygurney_10 water body does not form part of these areas.

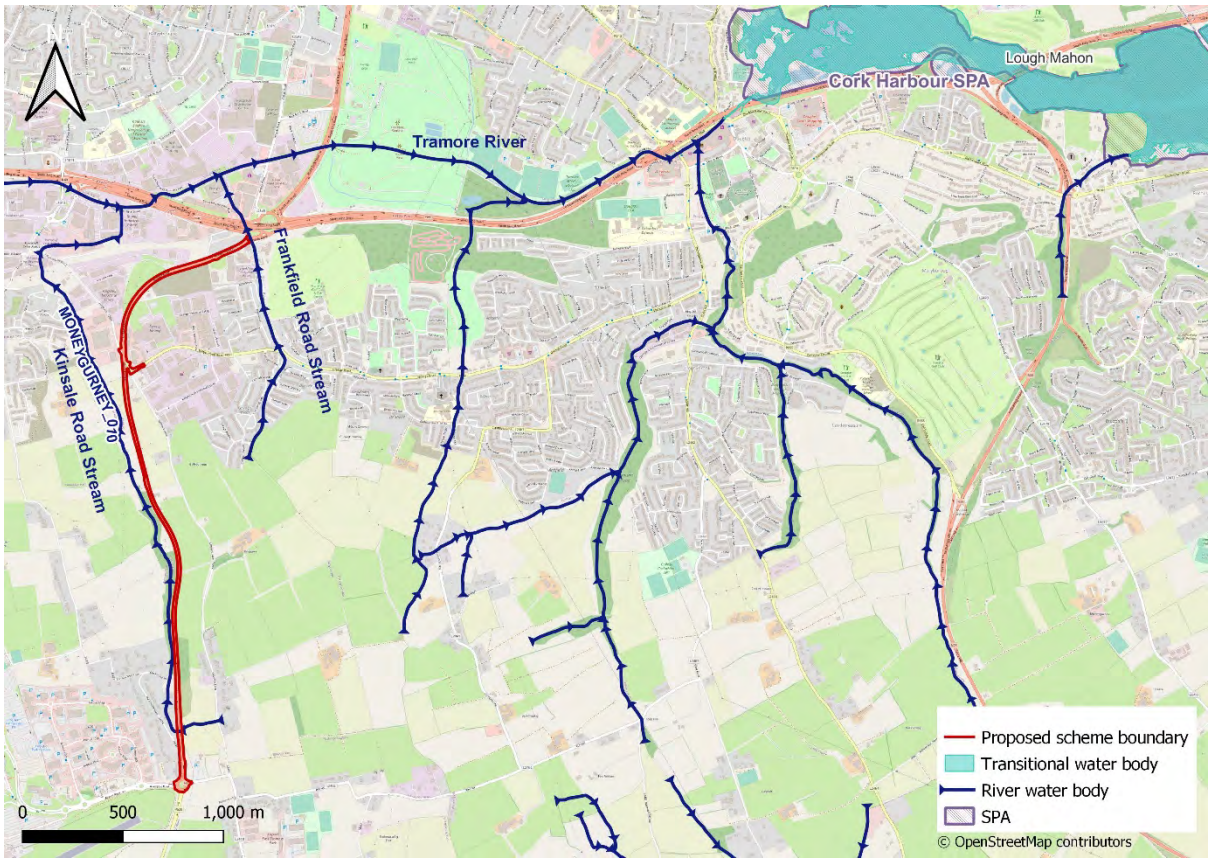

Figure 3-3: EPA mapped surface water bodies in the vicinity of the proposed development.

Table 3-6: Summary of WFD Status 2013-2018

Water body name	WFD code	WFD Status 2013-2018	WFD Risk
Moneygurney_010 (includes the Kinsale Road stream, Frankfield Road stream and Tramore river)	IE_SW_19M300900	Moderate	Under Review
Lough Mahon	IE_SW_060_0750	Moderate	At Risk

3.3.6.2. Aquatic dependent Annex II species

The Kinsale Road Stream, Frankfield Road Stream and Tramore River are not connected to any European sites with aquatic dependent Annex II species as Qualifying Interests.

Neither watercourse is designated as a Salmonid River under the Salmonid Regulations (S.I. 293 EC (Quality of Salmonid Waters) Regulations, 1988).

Freshwater pearl mussel (*Margaritifera margaritifera*) and white-clawed crayfish (*Austropotamobius pallipes*) do not occur within these streams and conditions are not suitable. Given the water quality of the rivers and significant barriers along the Tramore River it is considered unlikely to support migratory species such as Atlantic salmon (*Salmo salar*), sea lamprey (*Petromyzon marinus*) or river lamprey (*Lampetra fluviatilis*). The non-migratory brook lamprey (*Lampetra planeri*) may be present.

Inland Fisheries Ireland do not monitor the Moneygurney_010 water body. Electrofishing was conducted within the Kinsale Road Stream and Tramore River as part of the EIS for the Douglas Flood Relief Scheme (ARUP, 2017). The critically endangered European eel (*Anguilla anguilla*) was present within the Kinsale Road Stream, no other fish species were observed. In the Tramore River, brown trout (*Salmo trutta*), eel and stickleback (species not identified in report) were recorded.

3.3.7. Soils, Geology and Hydrogeology

According to GSI online mapping the underlying bedrock geology for the first half of the proposed scheme (1.5km starting from the Kinsale Road roundabout) is from the Gyleen formation consisting of sandstone with mudstone and siltstone. The second half as far as the Airport Roundabout is from the Ballytrasna formation consisting of purple mudstone and sandstone (bedrock geology at 1:100,000 scale). Bedrock outcrops occur along the road. The soil group is classified as deep well drained acid brown, earths/brown podzolics, lithosols and regosols.

The proposed development overlies the Ballinhassig east groundwater body (IE_SW_G_004) which is poorly productive. According to the GSI groundwater body characterisation report "*Groundwater flow paths are expected to be relatively short, typically from 30-300 m, with groundwater discharging to small springs, or to the streams that traverse the aquifer*. *Flow directions are expected to approximately follow the local surface water catchments. Owing to the poor productivity of the aquifers in this body it is unlikely that any major groundwater - surface water interactions occur. Baseflow to rivers and streams is likely to be relatively low*" (GSI, 2004). For this groundwater body the WFD Status is Good (2013-2018) and the risk of failing to achieve WFD status is under Review.

Groundwater vulnerability data is available through the GSI online mapping system. Groundwater that readily and quickly receives water (and contaminants) from the land surface is considered to be more vulnerable than groundwater that receives water (and contaminants) more slowly, and consequently in lower quantities. Also, the slower the movement and the longer the pathway, the greater is the potential for attenuation of many contaminants. Groundwater is most at risk where the subsoils are absent or thin and in areas of karstic limestone, where surface streams sink underground at swallow holes. The groundwater vulnerability code for the proposed development site is, Extreme and Rock at or near surface.

3.4. European Sites within the ZoI

The proposed scheme is not located within or immediately adjacent to any European site. The closest European site is Cork Harbour SPA (004030) approximately 2.6km as the crow flies and 3.2km downstream of the Frankfield Road Stream.

The Kinsale Road Stream intersects the existing N27 and proposed scheme. The Frankfield Road Stream is directly adjacent to the proposed scheme and the existing road drainage discharges to this stream. Both streams flow into the main channel of the Tramore River and the lower reaches of this river form part of the Cork Harbour SPA.

Therefore, a **source** (potential pollutants/disturbance of invasive species arising from proposed scheme during construction or operation) **pathway** (Kinsale Road and/or Frankfield Road streams transporting pollutants/invasives) **receptor** (Cork Harbour SPA) has been identified.

A source-pathway-receptor was not identified for any other European site. All European sites in the vicinity of the proposed development are shown in **Figure 3-4** below and **Table 3-7** lists the QI/SCIs and whether a source-pathway- receptor was identified.

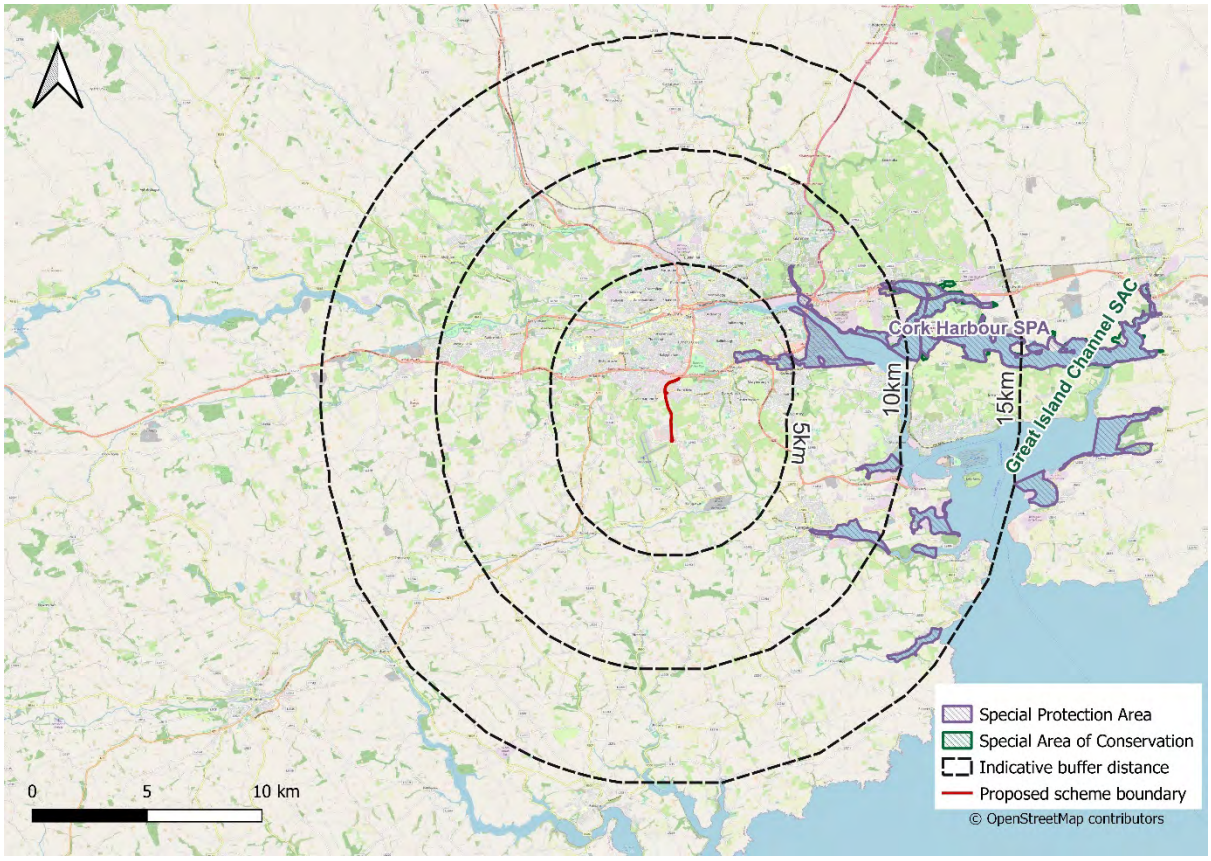

Figure 3-4: European sites within the ZoI of the proposed scheme.

Table 3-7: European sites within the ZoI of the proposed scheme and their QI/SCIs.

European site	Distance from proposed scheme	Qualifying Interest /Special Conservation Interest (* Priority Annex I habitat)	Conservation objective[6]	Source-Receptor-Pathway
Cork Harbour SPA 004030	c. 3.2km downstream c. 2.6km as crow flies	**Birds** • Little Grebe (*Tachybaptus ruficollis*) [A004] • Great Crested Grebe (*Podiceps cristatus*) [A005] • Cormorant (*Phalacrocorax carbo*) [A017] • Grey Heron (*Ardea cinerea*) [A028] • Shelduck (*Tadorna tadorna*) [A048] • Wigeon (*Anas penelope*) [A050] • Teal (*Anas crecca*) [A052] • Pintail (*Anas acuta*) [A054] • Shoveler (*Anas clypeata*) [A056] • Red-breasted Merganser (*Mergus serrator*) [A069] • Oystercatcher (*Haematopus ostralegus*) [A130] • Golden Plover (*Pluvialis apricaria*) [A140] • Grey Plover (*Pluvialis squatarola*) [A141] • Lapwing (*Vanellus vanellus*) [A142] • Dunlin (*Calidris alpina*) [A149] • Black-tailed Godwit (*Limosa limosa*) [A156] • Bar-tailed Godwit (*Limosa lapponica*) [A157] • Curlew (*Numenius arquata*) [A160] • Redshank (*Tringa totanus*) [A162] • Black-headed Gull (*Chroicocephalus ridibundus*) [A179] • Common Gull (*Larus canus*) [A182] • Lesser Black-backed Gull (*Larus fuscus*) [A183] • Common Tern (*Sterna hirundo*) [A193] **Habitat** • Wetlands and Waterbirds [A999]	NPWS (2014a). *Conservation Objectives: Cork Harbour SPA 004030.* Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht	**Yes** The proposed scheme intersects and/or discharges to streams connected to the Tramore River. The lower estuarine reaches of the Tramore River forms part of Cork Harbour SPA. There is potential for pollutants to be transported downstream to the SPA during construction. In addition, there is potential for the disturbance and distribution of invasive species during construction and/or operation Therefore, this SPA was included for further examination.

[6] Version of the conservation objective consulted are the most recent at the time of writing this report

European site	Distance from proposed scheme	Qualifying Interest /Special Conservation Interest (* Priority Annex I habitat)	Conservation objective[6]	Source-Receptor-Pathway
Great Island Channel SAC 001058	c. 10.1km downstream c. 7.1km as crow flies	**Habitat** • Mudflats and sandflats not covered by seawater at low tide [1140] • Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330]	NPWS (2014b). *Conservation Objectives: Great Island Channel SAC 001058.* Generic Version. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.	**No** Proposed scheme is not located within or adjacent to this SAC therefore there will be no direct disturbance of the QI habitats. The habitats within and adjacent to the proposed scheme area do not correspond with the QI habitats of this SAC which are found in transitional and coastal locations Lough Mahon is a large transitional waterbody separating the proposed scheme and the SAC. Given the robust nature of the QI habitats, dilution provided by Lough Mahon, narrow footprint of the scheme and distance between the proposed scheme and SAC no source-pathway-receptor was identified.

3.4.1. Description of European Site

A source-pathway-receptor was identified for one European site –Cork Harbour SPA (004030).

This assessment has had regard to the following documents associated with this SAC; Site Specific Conservation Objectives (NPWS 2014a); Conservation Objective Supporting Documents (NPWS 2014c); Site Synopsis (NPWS 2015); and the Natura 2000 form which lists the threats, pressures and activities which are negatively affecting the SPA[7]. These documents are available via the NPWS website https://www.npws.ie/protected-sites/spa/004030.

A full site synopsis for the SPA is available via the web address above (NPWS 2015). In brief, Cork Harbour is a large, sheltered bay system, with several river estuaries - principally those of the Rivers Lee, Douglas, Owenboy and Owennacurra. The SPA site comprises most of the main intertidal areas of Cork Harbour, including all of the North Channel, the Douglas River Estuary, inner Lough Mahon, Monkstown Creek, Lough Beg, the Owenboy River Estuary, Whitegate Bay, Ringabella Creek and the Rostellan and Poulnabibe inlets

Owing to the sheltered conditions, the intertidal flats are often muddy in character. Green algae species occur on the flats, especially Ulva spp. Cordgrass (*Spartina anglica*) has colonised the intertidal flats in places, especially where good shelter exists, such as at Rossleague and Belvelly in the North Channel. Salt marshes are scattered through the site and these provide high tide roosts for the birds. Some shallow bay water is included in the site.

The site supports nationally important wintering populations of 22 species, as well as a nationally important breeding colony of Common Tern. Common tern have nested in Cork Harbour since about 1970, and since 1983 on various artificial structures, notably derelict steel barges and the roof of a Martello Tower.

The site is also of special conservation interest for holding an assemblage of over 20,000 wintering waterbirds. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds.

The site provides both feeding and roosting sites for the various bird species that use it. Cork Harbour is also a Ramsar Convention site and part of Cork Harbour SPA is a Wildfowl Sanctuary.

The Conservation supporting document notes that intertidal mudflat habitat loss in the SPA has occurred due to expansion and development activities and associated land reclamation (e.g., Dunkettle Roundabout, Jack Lynch Tunnel, Marino Point). The presence of the invasive cord grass (*Spartina anglica*) within the site is also noted. High ranking threats listed on the Natura 2000 form include; port areas, roads/motorways, urbanised areas/human habitation, marine or freshwater aquaculture and industrial or commercial areas.

4. ASSESSMENT OF LIKELY SIGNIFICANT EFFECTS

The following potential impacts as a result of the construction and/or operation of the proposed scheme are discussed:

[7] Interpretation of threat and pressure codes listed with the Natura 2000 form is available here https://cdr.eionet.europa.eu/help/natura2000

- Habitat loss or fragmentation
- Disturbance via noise, lighting, vibration or human presence
- Spread of invasive species
- Degradation in surface water quality
- Degradation in groundwater quality or alteration in yield/flow
- In-combination effects

4.1. Habitat Loss or Fragmentation

The proposed scheme is located 2.6km (as the crow flies) from the boundary of the Cork Harbour SPA. There are 23 wetland and wading SCI birds designated as part of this SPA as well as supporting wetland habitat.

The habitats within the proposed scheme consist mainly of existing built infrastructure, grassy verges with treelines, scrub and hedgerows. The ecology survey did not identify any supporting wetland habitat for SCI birds of the Cork Harbour SPA within the proposed scheme boundary. Habitats within the proposed scheme are considered to be common within the wider landscape and of Local Importance.

The Kinsale Road Stream intersects the proposed scheme where it is diverted under the N27 via an existing culvert. This is a shallow and narrow stream dominated with cobble substrate and no instream vegetation observed. While some SCI birds may occur along the stream their presence would be considered opportunistic and the stream it is not considered to be supporting habitat for any wetland and wading SCI birds of the SPA. The Frankfield Road Stream flows adjacent to the start of the proposed scheme at the Kinsale Roundabout. Here it has been diverted under the roundabout as far as its confluence with the Tramore River. Due to its highly modified nature, it is not considered supporting habitat for an SCI bird of the SPA. As per the project description no instream or bankside works are required and no interference/realignment of existing culverts are required.

Habitats that will be removed will consist of existing build road infrastructure and grassy verges. The trees in front of the abandoned house by the Forge Hill junction may need to be removed if the land is acquired (approximately 50m of trees removed). This assessment has considered the worst-case scenario and assumed the trees will be removed. Other trees and shrubs may require trimming elsewhere along the proposed scheme but will not be removed.

The habitats recorded within the proposed scheme boundary and adjacent do not correspond to habitats listed on Annex I of the Habitats Directive. Therefore, the proposed scheme will not result in the loss or fragmentation of any habitat supporting SCI birds of the Cork Harbour SPA or any Annex I habitat as these habitats are not present within the proposed scheme boundary or adjacent.

4.2. Disturbance via Noise, Lighting, Vibration or Human Presence

The proposed scheme is located 2.6km (as the crow flies) from the boundary of the Cork Harbour SPA. There are 23 wetland and wading SCI birds designated as part of this SPA as well as supporting wetland habitat. Owing to this distance it is considered that there will be no direct disturbance to any SCI species of the SPA.

The ecological survey did not identify any SCI supporting habitat within/adjacent to the proposed development site. Therefore, it is considered that there will be no disturbance to any SCI species ex-situ of Cork Harbour SPA.

4.3. Spread of Invasive Species

The proposed scheme is located 2.6km (as the crow flies) from the boundary of the Cork Harbour SPA. There is a hydrological connection to this SPA via the Frankfield Road and Kinsale Road stream. The existing road drainage discharges to the Frankfield Road Stream. The Kinsale Road Stream intersects the N27 and flows parallel to the proposed scheme.

The ecological survey noted three invasive plant species listed as Third Schedule within or adjacent to the proposed scheme site, rhododendron, Japanese knotweed and three-cornered garlic. Rhododendron was only identified within private gardens and will not be disturbed as part of the proposed works. Therefore, it is not discussed further as there is no risk of spread of this species.

Japanese knotweed can spread easily when its underground rhizomes are disturbed. Rhizomes can grow up to 7m from the plant and the knotweed identified during the ecology survey is located within 7m of proposed works. During construction there is potential for disturbance of rhizomes (machinery, human disturbance). During operation there is also potential for disturbance of knotweed (e.g. machinery during landscaping activities, human disturbance). There is potential for these disturbed rhizomes to spread downstream to the SPA. The closest knotweed record to the Kinsale Road Stream is 52m and 1.4km from where the stream intersects the N27. No instream or bankside works are required for the proposed scheme. The most likely mode of dispersal of disturbed knotweed is considered to be via the road drainage system.

Three-cornered garlic along the edge of grassy verges outside of the proposed works area therefore it is unlikely that bulbs will be disturbed. However, there is potential for spread of seeds should they be present during works. Again, the likely mode of dispersal would be via the existing road drainage system.

The Parks Department of Cork City Council have an invasive species management plan already in place separate to the proposed scheme.

In accordance with S.I. No. 477/2011 - European Communities (Birds and Natural Habitats) Regulations 2011 measures must be taken to avoid the spread of any Third schedule species. These measures are not considered mitigation in the context of this AA Screening as they are not included to reduce or avoid any effect to a European site. The chances of knotweed and wild garlic spreading to the SPA via road drainage is considered to be remote given distance to the SPA and estuarine conditions however, the potential impacts have been assessed in the absence of any existing management.

The conservation objectives supporting document for Cork Harbour SPA lists the principal supporting habitats for the SCI birds as; intertidal mud sand flats, sheltered and shallow subtidal and lagoons. These are habitats that are covered by seawater during tides and considered unsupportive of Japanese knotweed and wild garlic growth.

The conservation objectives for Cork Harbour SPA do not have any specific targets relating to invasive species. Invasive species are not listed as potential threat upon the SPA. However, cord grass is mentioned within the Site Synopsis and Natura 2000 form as an invasive species of the mudflat/ marsh areas and does represent a threat to habitats SCI birds rely upon. The proposed scheme will not result in the spread of cord grass.

Habitats along the Kinsale Road and Frankfield Road streams are not supporting habitats for the SCI birds. Given the principal habitat requirements of SCI birds of Cork Harbour SPA and their conservation

objectives it is considered that the spread of Japanese knotweed or three-cornered garlic will not result in likely significant effects upon the SPA.

4.4. Degradation in Surface Water Quality

The proposed scheme is located 2.6km (as the crow flies) from the boundary of the Cork Harbour SPA. There is a hydrological connection to this SPA via the Frankfield Road and Kinsale Road stream. The existing road drainage discharges to the Frankfield Road Stream and the proposed scheme will utilise this drainage system. The Kinsale Road Stream intersects the N27 and flows parallel to the proposed scheme. The potential for pollutants (sediment and/or other toxic material) to enter these streams during construction/operation is considered.

The Frankfield Road or Kinsale Road streams do not contain supporting habitat for SCI birds of Cork Harbour SPA. No instream or bankside works are required. The Kinsale Road stream is separated from the works via grassy road verge, treelines and broadleaf woodland. Toward the Airport Roundabout there is also a grassy berm. It is considered that these features would separate the pathway from the development works to the Kinsale Road Stream. The grassy verges, treelines and woodland provide an area of filtration for any pollutants in the event of any surface water runoff.

The existing road drainage discharges to the Frankfield Road Stream. There is potential for pollutants (sediment and/or toxic material) to enter this stream via the road drainage system. The SPA is located 3.2km downstream of the Frankfield Stream within Lough Mahon. The works footprint is narrow and will be largely confined to the existing roadway. Principal supporting habitats for SCI birds include intertidal mud sand flats, sheltered and shallow subtidal and lagoons. These habitats are estuarine/coastal in nature and considered to be robust in nature. Owing to the confined nature of the works, dilution capacity within Lough Mahon and robust nature of supporting habitats to the SPA it is considered that any pollutants will be insignificant and not result in likely significant effect upon the SPA.

Taking the small scale, nature and location of the proposed development relative to the Cork Harbour SPA and taking into account the SCI birds and wetland habitats it is considered that surface water runoff during construction of the proposed development will not give rise to likely significant effects upon Cork Harbour SPA.

During operation the proposed scheme will utilise the existing road drainage system. The scheme is a footpath and cycleway and therefore is not considered to generate any increase in pollutants such as hydrocarbons as to result in likely significant effect upon the downstream SPA.

4.5. Degradation in Groundwater Quality or Alteration in Yield/Flow

The proposed development is located 1.1km (as the crow flies) from the boundary of the Blackwater River (Cork/Waterford) SAC. There are no groundwater dependent terrestrial ecosystems (GWDTE) associated with this SPA. No abstraction is required as part of the scheme. The ecological survey did not identify any GWDTE within or adjacent to the proposed scheme. The proposed scheme will mainly be located within the existing roadway. No alteration to groundwater quality or yield is predicated as a result of the proposed scheme.

4.6. In combination Effects

The proposed development was considered in-combination with other plans and projects in the area that could results in cumulative effects.

Cork City Council planning portal was consulted to identify proposed or permitted projects which may give rise to in-combination effects within the last 5 years. EPA online mapping portal was consulted to review any potential activities in the vicinity of the proposed scheme which may result in an in-combination effect (e.g., licenced discharges, industrial facilities, extraction activities and/or waste disposal sites). The Department of Housing, Local Government and Heritage EIA portal was consulted to search for any development within the area that required an EIA.

The results of the assessment are given below in **Table 4-1.** In the absence of any significant impacts on qualifying interests or conservation objectives associated with the proposed development no significant in-combination impacts have been identified.

Table 4-1: Summary of plans/policies near the proposed development which may have potential in-combination impacts.

Plans/Policies	Development	In-combination impact
Cork County Council **Planning Reference:2140353** Demolition and removal of an existing dwelling and ancillary structures and the construction of a mixed-use residential and commercial development in 13 no. blocks. Includes hotel, restaurant, retail, outdoor amenities. A new entrance/signalised junction and improvements to the N27 including 2 no. bus stops, cycle lane and footpaths Further Information requested	This is located in former agricultural field between Ferraro and the Toyota dealers adjacent to the proposed scheme	**No** There are no SCI supporting habitats within the proposed Kinsale road scheme and therefore no likely in-combination impacts with planning ref 2140353. As part of the 2140353 submission an AA Screening report was submitted. It is stated within the report that the site does not support SCI birds of Cork Harbour SPA and no surface water body to form a pathway for pollutants to enter Cork Harbour SPA. It concluded no likely significant effect upon European sites and NIS was not required.
Cork County Council **Planning Reference:184132** Alterations and extensions to existing dwellinghouse including: (1) Demolition of existing garage, (2) Construction of a two-storey extension to rear, (3) Construction of a single storey porch to front, (4) Ancillary site works and mains foul service connection for dwellinghouse. Permission granted (conditional) 2018	Located within private dwelling adjacent to the proposed scheme	**No** There are no SCI supporting habitats within the proposed Kinsale road scheme and therefore no likely in-combination impacts with planning ref. 184132. There are existing buildings and garden within the site. The site does not support SCI birds of Cork Harbour SPA and there is surface water body within the site. Foul water will be connected to public sewer.
IPPC **Registration P0407-01/02** Irish Pioneer Works. Emission to Air.	Fabricators 330m north east of the proposed scheme.	**No** Discharges from IPPC facilities are governed by strict standards to ensure the protection of air quality. The proposed scheme is a cycle and footpath and will not result in an increase in air emissions. No cumulative impacts have therefore been identified.
Waste Emission Points **W0173-01** Starrus Eco Holding Ltd. Emission to Water. **W0291-01** Forge Hill Recycling Ltd. Emission to Water.	A number of emissions to water points within Forge Hill industrial centre associated with industries here.	**No** The proposed scheme will utilize existing road drainage and given it is a cycle/footpath scheme no increase in pollutants (e.g., hydrocarbons) are anticipated. No cumulative impacts have therefore been identified.

Plans/Policies	Development	In-combination impact
W0171-01 Greenstar Holding Ltd Emission to Water.		
Developments Requiring EIA **Portal ID 2018011** Forge Hill Recycling Ltd. Expansion to facilitate an increase in tonnage to 100,000 tonnes per annum of an existing Materials Recovery Facility.	85m north west of the proposed scheme.	**No** There are no SCI supporting habitats within the proposed Kinsale road scheme and therefore no likely in-combination impacts with application 2018011. There is existing development located within the site and it site does not support SCI birds of Cork Harbour SPA. The proposed scheme will utilize existing road drainage and given it is a cycle/footpath scheme no increase in pollutants (e.g., hydrocarbons) are anticipated. No cumulative impacts have therefore been identified.

5. CONCLUSION

This report to inform AA Screening was prepared by Mayfly Ecology to assess whether the proposed development individually or in combination with other plans or projects, and in view of best scientific knowledge, is likely to have a significant effect on any European site(s).

While best practice construction methods will be employed these are not required to avoid or reduce any effects on a European site. These measures are not relied upon to reach a conclusion.

Following a source-pathway-receptor model the following European site was considered for detailed assessment. The potential impacts of the proposed development have been considered in the context of the Special Conservation Interests and their conservation objectives for this European site.

- Cork Harbour SPA 004030.

It is concluded that the proposed development, individually or in-combination with other plans or projects, is **not predicted** to result in likely significant effects upon Cork Harbour SPA or any other European site, in view of the said sites' conservation objectives.

Therefore, Stage 2 of Appropriate Assessment (Natura Impact Statement) is deemed **not to be required.**

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APPENDIX B SITE PHOTOGRAPHS

Photo 1: Frankfield Road Stream just before it passes under the Kinsale Roundabout.

Photo 2: Urbanised section on southbound carriageway near the Kinsale Roundabout.

Photo 3:Raised concrete platform by Bull McCabes pub at Ballycureen Junction.

Photo 7: Second ash tree beside photo 6 with bat roosting potential (TN2).

Photo 8: Disturbed ground beside approach to Airport Roundabout. Background shows beech hedging dividing the carriageways.

Photo 9:Kinsale Road Stream.

Photo 10: Broadleaved woodland along the Kinsale Road Stream.

Photo 11: Grassy verge and treeline along northbound carraigeway.

Photo 12: Trees overhanging wall along the abandoned house at the Ballycureen/Forge Hill Junction.

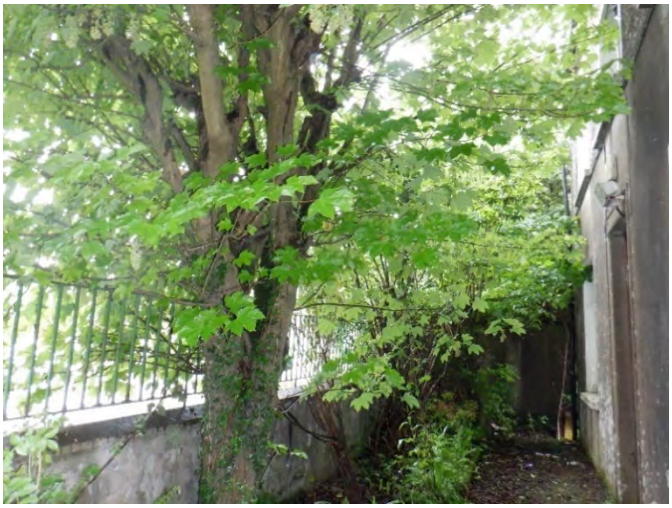

Photo 13: Abandoned house at the Ballycureen/Forge Hill Junction.

Photo 14: Japanese knotweed growth observed near Ferrero entrance along the southern carriageway.

Photo 15: Three cornered leek (foreground) and Japanese knotweed (background) observed along edge of grassy verge of southern carriageway.